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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/806,155 | 03/23/2004 | Takashi Hasebe | 02860.0784 | 1952 |

22852 7590 02/22/2007
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| EXAMINER |
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LIANG, LEONARD S

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| ART UNIT | PAPER NUMBER |
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2853

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 02/22/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/806,155

Applicant(s)

HASEBE ET AL.

Examiner

Leonard S. Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006 and 17 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1. ☐ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgavi (US Pat 6562413) in view of Ikemoto et al (US PgPub 20010020960).

Morgavi discloses:

- {claim 1} An image printing apparatus (figure 2); a conveyance-printing section for printing on a recording medium sheet (figure 2, reference 20; see arrow); a first printing device including a first printing reservoir mounted above the conveyance-printing section and aligned perpendicular to a conveyance direction of the recording medium sheet for jetting a first set of image-setting ink drops onto the recording medium sheet for printing (figure 2, reference 21; column 2, lines 1-22); a second printing device including a second printing reservoir mounted above the conveyance-printing section and aligned perpendicular to the conveyance direction of the recording medium sheet for jetting a second set of image-setting ink drops, respectively, onto the recording medium sheet for printing, the second printing device arranged downstream from the first printing device with respect to the conveyance direction of the recording medium sheet (figure 2, reference 22-24; column 2, lines 1-22); a first light radiating device,

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mounted above the conveyance-printing section and arranged downstream from the first printing device and upstream from the second printing device with respect to the conveyance direction of the recording medium sheet for radiating ultraviolet rays to harden surfaces of the first set of image-setting ink drops jetted from the first printing device before the second set of image-setting ink drops are jetted from the second printing device (figure 2, reference 25); a second light radiating device mounted above the conveyance-printing section and arranged downstream from the second printing device with respect to the conveyance direction of the recording medium for radiating the ultraviolet rays to harden surfaces of the second set of image-setting ink drops jetted from the second printing device, and to completely harden the first set of image-setting ink drops previously jetted from the first printing device (figure 2, reference 28)

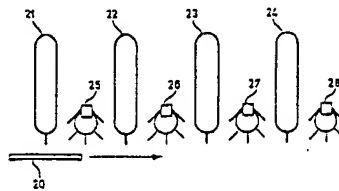


Fig. 2

- {claim 6} wherein the first printing reservoir is a black printing reservoir for jetting the first set of image-setting ink drops, the first set of image-setting ink drops being image-setting black ink drops, and wherein the plurality of the second printing reservoirs are color printing heads for jetting the second set of image-setting ink drops, the second set of image-setting ink drops being image-setting cyan, magenta, and yellow color ink drops (column 1, line 60 – column 2, line 5)

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- {claim 7} reservoirs comprising black, cyan, magenta, and yellow ink drops
(column 1, line 60 – column 2, line 5)
- {claims 4-5} colored dots formed by three or four ink elementary dots or primary colors of black (column 6, lines 20-22); modulating ray intensity based on ink volume (column 6, lines 33-45)

Morgavi additionally discloses that reservoirs 21-24 each contain their own line of ejection nozzles.

Morgavi differs from the claimed invention in that it does not explicitly disclose:

- {claims 1 and 6} that the ink reservoirs 21-24 contain a plurality printing heads
- {claim 7} wherein the plurality of the first printing heads are color printing heads for jetting the first set of image-setting ink drops, the first set of image-setting ink drops being image-setting cyan, magenta, and yellow color ink drops, and wherein the plurality of the second printing heads are black printing heads for jetting the second set of image-setting ink drops, the second set of image-setting ink drops being image-setting black ink drops
- {claim 4} wherein energy of the ultraviolet rays radiated from the second light radiating device is greater than energy of the ultraviolet rays radiated from the first light radiating device
- {claim 5} wherein energy of the ultraviolet rays radiated from the first light radiating device is greater than energy of the ultraviolet rays radiated from the second light radiating device

Ikemoto et al discloses:

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- {claim 1} a full line print head containing a plurality of head chips (figure 7B, reference 121; paragraph 0073)
- {claim 7} a printhead arrangement with cyan, yellow, and magenta printing heads being arranged before the black printing head (figure 1)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Ikemoto et al into the invention of Morgavi. The motivation for the skilled artisan in doing so is to gain the benefit of providing an ink-jet printer having high resolution and image quality, low power consumption, and low cost (abstract). The combination naturally suggests:

- {claim 7} wherein the plurality of the first printing heads are color printing heads for jetting the first set of image-setting ink drops, the first set of image-setting ink drops being image-setting cyan, magenta, and yellow color ink drops, and wherein the plurality of the second printing heads are black printing heads for jetting the second set of image-setting ink drops, the second set of image-setting ink drops being image-setting black ink drops (because in light of Ikemoto et al, the order of the color and black reservoirs of Morgavi can be interchanged)
- {claim 4} wherein energy of the ultraviolet rays radiated from the second light radiating device is greater than energy of the ultraviolet rays radiated from the first light radiating device (because it is naturally suggested that the color ink drops, being formed of multiple drops of elementary dots or primary colors of black, will occupy a greater volume of ink than just the regular black ink drops.

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As such, it is also naturally suggested that the radiating device will be modulated to a higher degree of intensity for the color drops than for the black drops)

- {claim 5} wherein energy of the ultraviolet rays radiated from the first light radiating device is greater than energy of the ultraviolet rays radiated from the second light radiating device (for the same reason as stated in claim 4)

Response to Arguments

Applicant's arguments with respect to claims 1 and 4-7 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S. Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

02/14/07

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STEPHEN MEIER
SUPERVISORY PATENT EXAMINER